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# Social Psychological Bulletin

Psychologia Społeczna

## Understanding How and Why Spatial Segregation Endures: A Systematic Review of Recent Research on Intergroup Relations at a Micro-Ecological Scale

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### Abstract

Social psychological research has increasingly extolled the benefits of intergroup contact as a means of promoting positive relations. However, a growing body of research suggests that formal policies of desegregation are often offset by informal 'micro-ecological' practices of (re)-segregation, in everyday life spaces. This paper presents a systematic literature review of recent evidence on this topic (2001-2017), outlining key findings about how, when, where, and why micro-ecological divisions are reproduced. Informal segregation can happen based on ethnicity, religion, socioeconomic status, gender, or gender and ethnicity, despite people being in a shared place. People generally maintain patterns of ingroup isolation as a result of: a) negative attitudes and stereotypes; b) ingroup identification and threat; or c) feelings of anxiety, fear and insecurity. Educational settings have been the main context studied, followed by leisure and recreational places, public urban places and public transport. The paper also identifies three areas of potential future research, highlighting the need to: (1) capitalise on methodological innovations; (2) explore systematically how, when and why the intersectionality of social categories may shape micro-ecological practices of contact and separation; and (3) understand more fully why micro-ecological patterns of segregation are apparently so persistent, as well as how they might be reduced.



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## Keywords

micro-ecology of segregation, systematic review, intergroup relations, contact hypothesis

Segregation plays an important role in perpetuating inequalities and prejudice in everyday realities of social life, even in formally integrated societies. People spend their daily time in various places, such as leisure or public places, which at first may seem to offer the opportunity to come into contact with different social groups. However, such mixing is not always common. Understanding how, when and why it happens has been the subject of study of several social psychologists. Indeed, the study of intergroup segregation is important for two main reasons. First, by limiting the access of some social groups to valued resources, segregation helps maintain social inequalities in institutions of health, housing, education and employment. Second, by limiting interaction between members of different social groups, segregation fosters intergroup prejudice and therefore creates conditions under which intergroup and interpersonal conflict and discrimination become more likely.

In psychology, the link between segregation and prejudice has been addressed by a long tradition of research on the contact hypothesis (Allport, 1954; Brown & Hewstone, 2005; Moody, 2001; Pettigrew, 1961). This tradition has demonstrated that interaction between groups - particularly when it occurs under favourable conditions (e.g., equality of status) - tends to promote positive emotions such as empathy and forgiveness and to reduce negative emotions such as anxiety and threat (Pettigrew & Tropp, 2011). Indeed, work in this tradition is often framed as one of psychology's most important contributions to creating a more equal and tolerant society and combating problems such as racism, homophobia, ageism and xenophobia (Vezzali & Stathi, 2017). For this reason, contact research has long underpinned policies advocating institutional desegregation, as exemplified most famously in the Brown versus the Board of Education case, which heralded the end of legally enforced racial segregation in the US (Dixon, Durrheim, & Thomae, 2014).

Dismantling the legal foundations of segregation, however, does not inevitably lead to either more frequent or more positive forms of contact between groups. At an institutional level, segregation may persist in residence, employment and schooling, driven, among other things, by enduring everyday practices of discrimination (e.g., Massey & Denton, 1993). Moreover, even in contexts where desegregation has been successfully implemented, and where members of different groups in theory have ample opportunities to interact, segregation may be reinstituted via mundane, informal, and 'preference driven' practices of avoidance. Indeed, a growing body of research suggests that the formal policies of desegregation are typically offset by informal 'micro-ecological' (Dixon, Tredoux, Durrheim, Finchilescu, & Clack, 2008) practices of (re)segregation, enacted across a range of everyday and institutional settings (e.g., Dixon & Durrheim, 2003; Swyngedouw, 2013; Tredoux & Dixon, 2009). In so far as such practices maintain inter-

group divisions, and limit the opportunity for individual members to experience intergroup contact, understanding how, when and why they occur becomes a significant research problem. More broadly, because analyses of such practices require research that captures individuals' everyday actions and activities, they also refocus social psychology on a historically important but increasingly neglected imperative (see [Doliński, 2018](#)): the study of real behaviour, through its observation in naturalistic settings.

The present paper presents a systematic literature review of research on social psychology on the micro-ecology of intergroup segregation in everyday life spaces. We consider the nature and extent of empirical evidence on this form of segregation, and discuss the social psychological processes that may help sustain and explain it. In particular, this systematic literature review regards recent evidence on micro-ecological practices of segregation, focusing on work that (1) has employed observation in naturalistic settings, alone or together with other methodologies; (2) has been published between 2001 and 2017, a period when the study of micro-level segregation emerged as a systematic research topic in social psychology [though we also acknowledge the significance of earlier studies conducted both by psychologists (e.g., [Schofield & Sagar, 1977](#)) and by researchers working in other disciplines (e.g., [Davis, Seibert, & Breed, 1966](#))]. Specifically, this review aims to analyse: a) the types of segregation, contexts and methodologies on which social psychology researchers have focused; b) the main findings they have produced; and c) the psychosocial processes that may help explain observed micro-ecological patterns of interaction and segregation.

We also identify areas of future research and the directions (e.g., multi-method, interdisciplinary) that it may take to help develop a fuller understanding of the persistence of micro-ecological segregation.

## Method

### Information Sources and Search Strategy

A systematic literature search was conducted in eight electronic databases: 1) Academic Search Complete 2) PsycARTICLES, 3) PsycINFO, 4) Psychology and Behavioural Sciences Collection, 5) Scopus, 6) ScienceDirect, 7) Web of Science, and 8) Google Scholar. The search was restricted to original and peer-reviewed research written in English and other languages, and studies published between January 2001 and December 2017. The following groups of keywords were combined and used to identify the studies: a) "social groups" OR "racial groups"; AND b) "micro-ecology of segregation" OR "micro-ecology of contact" OR "micro-ecology of everyday life spaces" OR "racial segregation" OR "socio-spatial segregation" OR "micro-ecological behaviour" OR "informal segregation" OR "classroom segregation"; AND c) "observation" OR "case study" OR "intergroup contact" OR "spatio-temporal interactions"; AND d) "qualitative" OR "mixed methods" OR "micro-

ecological research” OR “quantitative”. Additionally, a hand search was conducted in the references of the relevant papers and in a previous literature review on the issue of micro-ecology of segregation (Dixon et al., 2008), for potentially relevant citations.

## Inclusion and Exclusion Criteria

Studies were included in this review if they met the following criteria: 1) investigated how, why or when different (social, ethnic, religious) groups interact with or avoid one another in everyday spaces; 2) studied the local spatial practices of contact/segregation of different groups; and 3) used observational methods - i.e., direct observation of people's behaviour in everyday natural situations - either alone or in conjugation with other methods - for addressing practices of contact and segregation in natural settings. Studies were excluded that: 1) focused only on macro-spatial segregation, i.e., residential, socio-economic, or housing segregation, or distribution of different groups on a city or national scale; 2) used only laboratory experimental methodologies for producing contact or segregation; and 3) did not employ an observational methodology.

## Study Selection and Data Extraction

We conducted a four-phase process, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement (see Liberati et al., 2009). The initial search with the keywords above resulted in 2499 articles, reduced to 1995 when all duplicates were removed (see Figure 1). The selection of the relevant studies began with an examination of the information included in the title and abstract, which helped exclude articles obviously non-relevant. This left 134 articles whose titles and abstracts met the inclusion criteria, and which were fully read. The reading showed that 94 of these 134 articles did not, in fact, meet the inclusion criteria, and these were excluded. They focused, for example, on macro-level segregation analysis (residential demography), or solely used questionnaire or interview methods, without observation. After all studies had been reviewed, 38 studies remained as fully relevant (see Figure 1). From these, data were extracted using both quantitative and qualitative syntheses. Regarding quantitative synthesis, the following data were extracted: a) type of segregation and sample characteristics; b) context of study (setting and country); and c) methodology (only observation or mixed method). Regarding the qualitative synthesis, it was focused on: a) aim of the study; and b) main findings. This approach enabled us to explore the nature and key findings of recent research on how groups interact with each other in particular contexts, as well as to elucidate the psychosocial processes that may underlie local patterns of interaction or segregation.

## Results

A total of 38 articles were included in the review (see Figure 1).

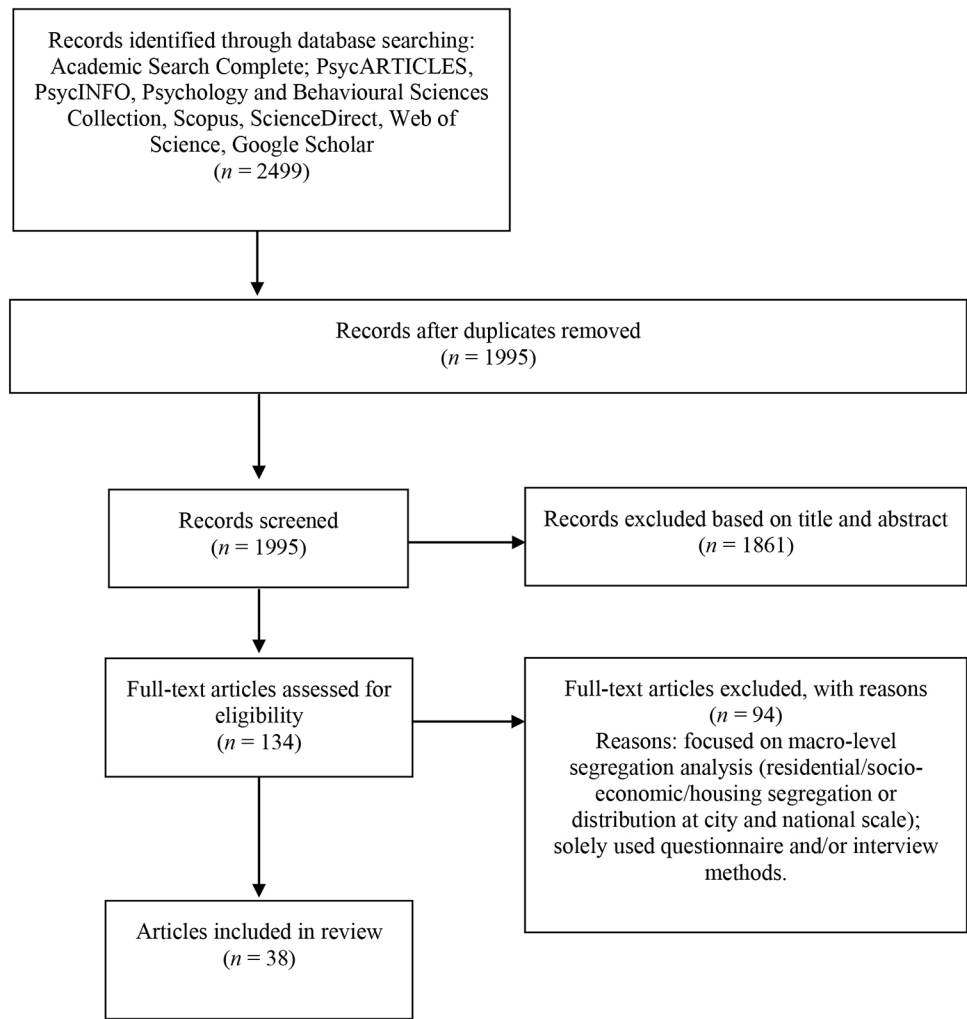


Figure 1. Results of the search strategy based on the PRISMA statement (Liberati et al., 2009).

The findings of the review will now be reported in two major sections. The first section reports a *quantitative* analysis of the articles, looking at (1) the type of segregation studied; (2) the sample; (3) the context of study; and (4) the methodology/ies used. The second section reports a detailed *qualitative* analysis of the articles, summarising the central findings in two sub-sections. This analysis was conducted as follows. First, each article

was read in its entirety. Second, the central findings regarding the patterns of segregation and interaction found were identified (first sub-section). Third, regarding the studies using a mixed methodology, the results found by each method (questionnaires, interviews/focus group), and the psychosocial processes that researchers used to explain micro-ecological patterns of segregation in a given setting were identified (second sub-section).

## Research on the Micro-Ecology of Segregation: A Quantitative Overview

As shown in Table 1, 11 of the 38 located studies focused solely on observations. The remaining 27 used a mixed method approach, complementing observational methodologies with interviews/focus group ( $N = 18$ ), questionnaires ( $N = 5$ ), and interviews/focus group plus questionnaires ( $N = 4$ ).

Regarding the contexts of study, the micro-ecology of segregation has mainly been studied in school and university settings ( $N = 20$ ). Within this body of work, research has been mainly developed in South Africa ( $N = 7$ ), with researchers studying the seating patterns of students of multi-ethnic university dining halls (Alexander, 2007; Schrieff, Tredoux, Dixon, & Finchilescu, 2005), public steps (Tredoux, Dixon, Underwood, Nunez, & Finchilescu, 2005), lecture theatres (Koen & Durrheim, 2010) and classrooms (Alexander & Tredoux, 2010), university residences (Schrieff, Tredoux, Finchilescu, & Dixon, 2010), and private and desegregated co-educational high schools (Keizan & Duncan, 2010).

The USA is the country that comes next in number of studies ( $N = 5$ ). Here the micro-ecology of segregation has been studied in educational settings: notably, classrooms and other informal settings in university campuses (Cowan, 2005), classrooms and other school settings in an elementary school (Henze, 2001), middle school cafeterias (Echols, Solomon, & Graham, 2014), university dining halls (Lewis, 2012), and youth sports events in the suburbs (Messner & Bozada-Deas, 2009). In Northern Ireland ( $n = 3$ ), too, studies have explored the meeting halls and buses of segregated schools (McKeown, Cairns, Stringer, & Era, 2012), university lecture theatres (Orr, McKeown, Cairns, & Stringer, 2012), and classrooms of integrated secondary schools (McKeown, Stringer, & Cairns, 2016). The remaining five articles investigated relations in multi-ethnic university and high-school cafeterias in England (Clack, Dixon, & Tredoux, 2005; Ramiah, Schmid, Hewstone, & Floe, 2015), a public school recess in a working-class neighbourhood in Spain (Rodriguez-Navarro, García-Monge, & Rubio-Campos, 2014), the classrooms of three multiethnic secondary schools in Belgium (Van Praag, Boone, Stevens, & Van Houtte, 2015), and the classrooms of two high schools in the Netherlands and the USA (de Haan & Leander, 2011).

Table 1

Summary of Studies From 2001 to 2017 Relative to Studies' Type of Segregation Analysed, Sample, Context of Study and Methodology

Authors	Type of segregation	Sample	Context of study	Methodology
Schrieff et al. (2005)	Ethnic <sup>a</sup>	White (minority group) and black university students (majority group) using the dining hall.	2 university dining halls of the University of Cape Town, South Africa.	Observation
Alexander (2007)	Ethnic	Black and white university students using the dining hall.	2 university dining halls of a multi-ethnic university in South Africa.	Observation
Tredoux et al. (2005)	Ethnic	University students from different ethnic groups using the steps.	Jameson steps located on the campus of the University of Cape Town, South Africa.	Observation
Cowan (2005)	Ethnic	2177 groups of university students from 4 ethnic groups: African American, Asian American, Latinos, Whites.	6 California State University campuses, USA – classrooms and informal settings on campus.	Observation
Clack et al. (2005)	Ethnic	University students from different ethnic groups using the cafeteria.	Multi-ethnic university cafeteria in a city in the north-west of England.	Observation
Tredoux and Dixon (2009)	Ethnic	Users from different ethnic groups (blacks, coloured and whites) of 10 establishments.	Nightclubs in Long Street in Cape Town's city centre, South Africa.	Observation
Koen and Durrheim (2010)	Ethnic	1st year university students - blacks, coloured, Indian and whites.	University lecture theatres at the University of kwaZulu-Natal, Pietermaritzburg campus, South Africa.	Observation
Swyngedouw (2013)	Ethnic	Users of a train line, from different neighbourhoods of an ethnically segregated city.	L-train line in Chicago, USA.	Observation
Priest et al. (2014)	Ethnic	Users of urban public places, from different ethnic groups.	Urban public places in Victoria, Australia.	Observation
Dixon and Durrheim (2003)	Ethnic	Visitors of a beachfront from different ethnic groups - black, white, Asian, coloured.	Scottburgh's beachfront, South Africa.	Observation and interview/focus group
Durrheim and Dixon (2005)	Ethnic	Visitors of a beachfront from different ethnic groups - black, white, Asian, coloured.	Scottburgh's beachfront, South Africa.	Observation and interview/focus group
Durrheim (2005)	Ethnic	Visitors of a beachfront from different ethnic groups - black, white, Asian, coloured.	Scottburgh's beachfront, South Africa.	Observation and interview/focus group
Salari et al. (2006)	Ethnic	Seniors attendants from diverse ethnic groups.	3 Senior centres in a western state in the USA.	Observation and interview/focus group
Arjona and Checa (2008)	Ethnic	Users of a bus line from different ethnic groups.	Bus of a line of <i>Roquetas de Mar</i> , in Almeria, Spain.	Observation and interview/focus group



Authors	Type of segregation	Sample	Context of study	Methodology
Hunter (2010)	Ethnic	Club-goers of different ethnic groups.	A predominantly black nightclub, <i>The Spot</i> , in Chicago, USA.	Observation and interview/focus group
Echols et al. (2014)	Ethnic	6th, 7th, and 8th school graders from different ethnic groups: white, Latino, Asian, African American, and biracial.	Cafeteria of a multi-ethnic middle school in Northern California, USA.	Observation and interview/focus group
Spitz (2015)	Ethnic	Users of public places of a neighbourhood: black, white, and Latino/a residents and business owners.	Urban public places of the sociocultural diverse neighbourhood of Riverwest, in Milwaukee, Wisconsin, USA.	Observation and interview/focus group
Besharati and Foster (2013)	Ethnic	Residents of the Indian community.	Indian community of Mokopane, Akasia, South Africa.	Observation and interview/focus group
Van Praag et al. (2015)	Ethnic	Students of 3 secondary schools, from different ethnic groups.	Classrooms of 3 Flemish multiethnic secondary schools - St. Bernardus, Mountain High, and Catherine College, Belgium.	Observation and interview/focus group
Kesten et al. (2011)	Ethnic	Local authority staff, youth workers, community development workers, staff working in schools, representatives of local community; 'Black African' communities-Ghanaian and Somali.	Urban public places in Milton Keynes, England.	Observation and interview/focus group
de Haan and Leander (2011)	Ethnic	High school students from different ethnic groups.	Classrooms of 2 high schools. One in Utrecht, Netherlands, and the other is Kempton High in a moderately sized Midwestern city in the USA.	Observation and interview/focus group
Alexander and Tredoux, (2010)	Ethnic	749 black and white university students.	University classrooms in a public university in South Africa.	Observation and interview/focus group
Keizan and Duncan (2010)	Ethnic	Adolescents' students from different ethnic groups.	Free time of students in 2 different private, desegregated, co-educational high schools in Gauteng province, South Africa.	Observation and interview/focus group
Henze (2001)	Ethnic	Students from different ethnic groups, teachers, administrators, other staff, and parents.	Classrooms, meetings and other key events in Cornell Elementary School, in northern California, USA.	Observation and interview/focus group and questionnaire
Lewis (2012)	Ethnic	University students using dining halls during lunch time, from different ethnic groups.	University dining-halls in Southtown University, in the southern USA.	Observation and interview/focus group and questionnaire
Schrieff et al. (2010)	Ethnic	University students of different ethnic groups.	2 undergraduate university catered residences (one female,	Observation and questionnaire

Authors	Type of segregation	Sample	Context of study	Methodology
			one male) at the University of Cape Town, South Africa.	
Ramiah et al. (2015)	Ethnic	White and Asian students, aged 16-18 and 10-11 years old.	High school cafeteria in England.	Observation and questionnaire
Nagle (2009)	Religious <sup>b</sup>	Protestant and Catholic users of Belfast City Centre in public events (e.g., Gay Pride, St. Patrick's Day, May Day, Lord Mayor's Carnival).	Urban public places in Belfast City Centre, Northern Ireland.	Observation
Abdelmonem and McWhinney (2015)	Religious	Protestant and Catholic users of the public parks.	Public parks in Belfast, Northern Ireland.	Observation and interview/focus group and questionnaire
McKeown et al. (2012)	Religious	Protestant and Catholic students aged 16 and above.	Spaces of segregated schools: meeting room; meeting hall and bus (before and after students attending a cross-community weekend), in Northern Ireland.	Observation and interview/focus group and questionnaire
Orr et al. (2012)	Religious	Protestant and Catholic 2nd year undergraduate students.	Lecture theatres in a university in Northern Ireland.	Observation and questionnaire
McKeown et al. (2016)	Religious	Protestant and Catholic students aged 11-12 and 13-14 years old.	Classrooms of 3 integrated secondary schools in Northern Ireland.	Observation and questionnaire
Pérez Tejera (2012)	Socioeconomic <sup>c</sup>	Users of 40 public squares and parks from different socioeconomic status groups.	Urban public places - squares and parks - in Barcelona, Spain.	Observation
Stillerman and Salcedo (2012)	Socioeconomic	Users of shopping malls, from different socioeconomic status groups.	2 shopping malls in Santiago, Chile.	Observation and interview/focus group
Krellenberg et al. (2014)	Socioeconomic	Users of green spaces and residents from different socioeconomic status groups of the surrounding neighbourhoods.	4 green public spaces of a socioeconomically mixed neighbourhood in Santiago, Chile.	Observation and questionnaire
Garrido (2013)	Socioeconomic	Residents of enclaves (villagers) and slums (squatters).	Public urban places in Metro Manila, Philippines.	Observation and interview/focus group
Messner and Bozada-Deas (2009)	Gender <sup>d</sup>	Women and men volunteers on youth sports events.	Youth sports events in a small independent suburb of Los Angeles, USA.	Observation and interview/focus group
Rodriguez-Navarro et al. (2014)	Gender and Ethnic <sup>e</sup>	School students: immigrant newcomers, girls and boys.	School recess of a public school from a working-class neighbourhood in Castile-León, Spain.	Observation and interview/focus group

<sup>a</sup>N<sub>ethnic</sub> = 27. <sup>b</sup>N<sub>religious</sub> = 5. <sup>c</sup>N<sub>socioeconomic</sub> = 4. <sup>d</sup>N<sub>gender</sub> = 1. <sup>e</sup>N<sub>gender/ethnic</sub> = 1.

The next most frequently studied contexts were leisure or recreational public places ( $N = 16$ ). Such places were widely varying and included an open beach in post-apartheid South Africa (Dixon & Durrheim, 2003; Durrheim, 2005; Durrheim & Dixon, 2005) and senior citizen centres in a USA western state (Salari, Brown, & Eaton, 2006). They also included public urban places in Northern Ireland ( $N = 2$ ; Abdelmonem & McWhinney, 2015; Nagle, 2009), Spain (Pérez Tejera, 2012), Australia (Priest, Paradies, Ferdinand, Rouhani, & Kelaher, 2014), the USA (Spitz, 2015), the Philippines (Garrido, 2013), South Africa (Besharati & Foster, 2013), and England (Kesten, Cochrane, Mohan, & Neal, 2011), as well as green public places in Chile (Krellenberg, Welz, & Reyes-Päcke, 2014), pubs and nightclubs in South Africa (Tredoux & Dixon, 2009) and the USA (Hunter, 2010), and shopping malls in Chile (Stillerman & Salcedo, 2012). Finally, two studies focused on understanding the use and seating patterns of different ethnic groups along a bus line in a province of Spain (Arjona & Checa, 2008) and on a train line in the USA, Chicago (Swyngedouw, 2013).

In terms of social categories, research has mainly studied the everyday local patterns of segregation between different ethnic groups ( $N = 27$ ; e.g., Arjona & Checa, 2008; Durrheim & Dixon, 2005; Kesten et al., 2011; Lewis, 2012; Ramiah et al., 2015; Swyngedouw, 2013; Tredoux & Dixon, 2009). For this, it has focused on students (e.g., Alexander & Tredoux, 2010), beachgoers (e.g., Dixon & Durrheim, 2003), senior centre attendants (Salari et al., 2006) and public transport users (e.g., Arjona & Checa, 2008; Swyngedouw, 2013). However, various authors have also investigated micro-ecological segregation in relation to religious categories ( $N = 5$ ; Abdelmonem & McWhinney, 2015; McKeown et al., 2012; McKeown et al., 2016; Nagle, 2009; Orr et al., 2012), socioeconomic status ( $N = 4$ ; Garrido, 2013; Krellenberg et al., 2014; Pérez Tejera, 2012; Stillerman & Salcedo, 2012), gender ( $N = 1$ ; Messner & Bozada-Deas, 2009), and gender and ethnic background ( $N = 1$ ; Rodriguez-Navarro et al., 2014). Taking into account the considerable diversity of types of segregation and contexts studied, the next section will outline the main findings of such studies.

## Main Findings of Research: A Qualitative Overview

### Micro-Ecological Patterns Observed

In general, studies have shown that local patterns of segregation occur even in contexts that at first sight seem inclusive, because different groups are co-present there, thus revealing how informal segregation can happen despite people being in a shared space (McKeown et al., 2016). This finding characterises almost all of the studies (see Appendix 1 for a table showing a summary of the studies' main findings). That is, micro-ecological observations of people's behavioural patterns in various places reveal that, independent of the nature of the analysed context, groups from different ethnic, religious, socioeconomic backgrounds or of different gender tend to isolate themselves and to interact at an intragroup level only, even in settings where no formal boundaries to intergroup interac-

tion exist (e.g., Durrheim, 2005; McKeown et al., 2012; Pérez Tejera, 2012; Rodríguez-Navarro et al., 2014). Some relevant empirical findings are worth highlighting as examples of this pattern, regarding different types of segregation: a) ethnic; b) religious; c) socioeconomic; d) gender; and e) gender and ethnic.

**Ethnic segregation** — Studies of ethnic interactions on a public open beach in the new post-apartheid South Africa have shown how the formal end of a regime that legalised institutional segregation may be insufficient to dissolve informal segregation behaviours in leisure spaces (Dixon & Durrheim, 2003; Durrheim & Dixon, 2005; Durrheim, 2005). Indeed, in this research, the behaviour of observed black and white beachgoers exhibited clear patterns of avoidance of the other across a number of scales. First, at the most intimate scale, “umbrella space” segregation by race was almost complete (see Figure 2), with black and white beachgoers tending to sit in racially homogeneous clusters (Durrheim & Dixon, 2005). Second, segregation was also manifest via broader spatial patterns of racial distribution across the beachfront, as expressed via the statistically uneven distribution of white and black beachgoers across different sectors (Dixon & Durrheim, 2003). Third, segregation occurred via temporal patterns of movement and avoidance. Specifically, whites tended to maintain racial distances from blacks by occupying the beach early, clustering together, and then gradually withdrawing if black beachgoers entered the beach in greater numbers (Durrheim & Dixon, 2005; Durrheim, 2005).

Such patterns of segregation are the most common finding revealed in this review. Moreover, while some studies suggest that members of different minority groups may display lower levels of segregation than those that characterise majority-minority relations (e.g., Keizan & Duncan, 2010), segregation can also occur between minority subgroups, as shown by Besharati and Foster (2013). In this study, members of the Indian minority community in Mokopane (South Africa) identified themselves with different categories, namely ‘South African Indians’ and ‘immigrant Indians’, and this categorisation was in turn expressed in terms of socio-spatial divisions between their members. Research conducted in educational settings shows that there may be a gradual tendency for friendships to occur in ethnically homogeneous groups over a semester (Koen & Durrheim, 2010), and how ethnic micro segregation may increase over time (Alexander & Tredoux, 2010; Koen & Durrheim, 2010), and that patterns of segregation may also be consistent over time. Schrieff et al. (2010), for example, found that the organisation of seating arrangements in a university dining hall evinced stable, long-term patterns of ethnic segregation.



*Figure 2.* Map of micro-ecological patterns of ethnic segregation on a beachfront in post-apartheid South Africa (see Durrheim & Dixon, 2005).

*Note.* The map captured relations on the morning of December 28, 1999. White occupants are indicated in blue, Black occupants in red, Indian occupants in yellow and Coloured occupants in orange.

An interesting topic running through some of the reviewed articles is the idea of linking the macro with the micro level contexts, as illustrated by Swyngedouw's (2013) study. The study focused on analysing the seating patterns on the Red Line train from South Side to the North Side in Chicago. It showed that segregation on the Red Line expressed both local seating choices and wider forms of geographical and social exclusion in the city. Commuters tended to sit mainly with people who looked similar to themselves and appeared to be from the same area in Chicago. At the same time, as the trains travelled from north to south Chicago, such patterns also reflected the wider racial organisation of residential segregation in the city, including local demographic patterns and social norms.

**Religious segregation** — Orr et al. (2012) evidence how even in a place where students are free to choose where to sit, such as a university lecture theatre, they tend to sit next

to individuals with the same religious background, a categorisation not immediately recognisable by visual identity cues as obvious as skin colour (Orr et al., 2012). Indeed, a growing body of work conducted in Northern Ireland – known as a ‘divided society’ characterised by profound patterns of ethnonational and religious segregation (Nagle, 2009) – has shown how religious identities may shape micro-ecological behaviours in both educational and public places. Nagle (2009) and Abdelmonem and McWhinney’s (2015) studies in Belfast, for example, indicate how Protestants and Catholics tend to create intergroup boundaries in public places, giving rise to local segregation patterns. For instance, in public events organised in Belfast’s City Centre designed to promote ‘shared space’, notably the annual St. Patrick’s Day celebrations, some Protestants tend to segregate themselves in city-centre space. Arguably, this is because they feel uncomfortable in an environment that is perceived to reflect Catholic, nationalist “triumphalism” (Nagle, 2009). These findings show how the micro-ecology of spatial segregation may shape not only local patterns of intergroup contact, but also the broader social and political organisation of a given urban environment (Abdelmonem & McWhinney, 2015; Nagle, 2009).

**Socioeconomic segregation** — Micro-ecological patterns of segregation in everyday life can stem from individuals’ choices based on socioeconomic status (Garrido, 2013). People tend to employ practices of social and economic exclusion when using shopping malls (Stillerman & Salcedo, 2012), parks or squares in the city (Pérez Tejera, 2012), green public places (Krellenberg et al., 2014) or public places situated in parts of the city with profound status distinctions between residents (Garrido, 2013). Pérez Tejera (2012) suggests that public places with the presence of immigrants (independently of their ethnicity) and other social groups with evident cues of lower economic power are seen as less secure. The result is the avoidance of these places and the emergence of segregated areas (Pérez Tejera, 2012), seen as comfort zones by the individuals that have chosen them (Garrido, 2013). The same occurs when poor residents avoid specific malls for fear of feeling humiliated by wealthier customers (Stillerman & Salcedo, 2012). In sum, there is a tendency to avoid proximity to, and potential mixing with, residents of a different socioeconomic status (Garrido, 2013; Krellenberg et al., 2014). These findings reflect once again the connection between macro and micro segregation, as local segregated public places in the city may express the city’s macro socioeconomic organisation (Krellenberg et al., 2014).

**Gender and gender and ethnicity** — We found only two studies focusing on gender segregation, which suggests it has been neglected in the micro-ecological literature (Messner & Bozada-Deas, 2009; Rodriguez-Navarro et al., 2014). Exploring the interaction between gender and ethnic segregation, Rodriguez-Navarro et al. (2014) found that boys segregated from immigrants in school recess activities to a greater degree than girls. Moreover, girls were more prone to interact with boys and to engage in cross-gender ac-



tivities than vice versa, with boys being more likely to reject girls' presence in activities such as sports (Rodríguez-Navarro et al., 2014). Along similar lines, Messner and Bozada-Deas's (2009) study revealed how micro-ecological patterns of gender segregation unfold between mothers and fathers at their children's sport events. In this study, fathers tend to assume a leadership role during soccer games, leaving mothers with a secondary or non-participatory role. This, in turn, led to the creation of gender homogeneous spaces, with no or little interaction between women and men.

**Two opposing examples** – Qualifying the main findings of this systematic review, which confirmed the widespread occurrence of micro-ecological patterns of segregation, is the work of Cowan (2005) and Hunter (2010), both developed in the USA. Cowan (2005) found no differences in the percentages of inter-ethnic and intra-ethnic groupings of students present in ethnically diverse university campuses in six southern California State University campuses - within four ethnic groups (African American, Asian American, Latinos, and whites) - and also confirmed that interethnic contact was more frequent in ethnically heterogeneous environments. In turn, Hunter (2010) found that a predominantly black nightclub in downtown Chicago provided a unique opportunity for black clients to interact across ethnic lines with people who were not from their own neighbourhoods. Both studies show that in multi-ethnic contexts individuals may not invariably act in ways that reproduce segregation.

**A brief summary** – In sum, the two examples above notwithstanding, the micro-ecology literature shows people generally maintain patterns of in-group isolation (e.g., Keizan & Duncan, 2010; Kesten et al., 2011; McKeown et al., 2012; Nagle, 2009; Priest et al., 2014; Ramiah et al., 2015). It is important to recognise, of course, that the degree of such isolation may vary across contexts and social groups. The social context created by crowding, for example, leads individuals to be less willing to associate with members of other groups (Clack et al., 2005; Durrheim & Dixon, 2005). Moreover, different levels of segregation may characterise relations among different groups (Keizan & Duncan, 2010; Lewis, 2012), and patterns of segregation may occur between minority sub-groups as well as between minority-majority groups (Besharati & Foster, 2013). Given their sheer prevalence and potentially negative consequences, it is important to understand why such kinds of segregationist behaviours are so common and persistent. Addressing this issue, the next section explores some potential social psychological processes that may help explain such behaviours.

### Social Psychological Processes Associated With Micro-Ecological Segregation

Several researchers (e.g., Besharati & Foster, 2013; Durrheim & Dixon, 2005; Spitz, 2015) have emphasised the need to understand the social psychological processes that underpin nonverbal 'macrokinetic' behaviours maintaining socio-spatial divisions (Dixon et al.,

2008). In order to address such social psychological processes in their studies, some researchers have employed mixed method approaches – for example, by combining observations with interviews or focus group methods (e.g., Dixon & Durrheim, 2003; Rodriguez-Navarro et al., 2014) and/or questionnaires (e.g., Lewis, 2012; McKeown et al., 2012). Drawing on these studies, we explored the social psychological processes linked to patterns of micro segregation. The studies' findings were decomposed into three categories of processes, based on the mechanisms identified by the researchers: 1) negative attitudes and stereotypes; 2) ingroup identification and threat; and 3) feelings of anxiety, fear and insecurity.

**Negative attitudes and stereotypes** — Several studies explored how local patterns of segregation might be associated with beliefs and stereotypes about specific ethnic or religious groups (e.g., Dixon & Durrheim, 2003; McKeown et al., 2012) that people construct and internalise and with affective responses towards such groups (Bigler & Liben, 2006).

Through their interviews conducted in a newly desegregated beach in South Africa, Durrheim and Dixon (2005) found that black beachgoers interpreted patterns of racial segregation as expressions of white racism and an attempt to maintain racial privilege. Specifically, they argued that negative stereotypes of black beachgoers as 'dirty' or 'dangerous' led whites to practice avoidance. Drawing on themes that were prominent within the ideology of apartheid, by contrast, white South Africans explained segregation as part of the 'natural order of things', a normal and legitimate expression of universal cultural and biological differences (Durrheim & Dixon, 2005).

The relationship between racist talk and embodied segregationist practices is also present in the study of Arjona and Checa (2008) conducted on public transport. Through the analysis of semi-structured interviews with Spanish and foreign bus users, the study explained how the frontiers maintained in inter-racial interactions stem from prejudice and stereotype towards immigrants, which "*regulate the possibility of contact, and the final result of which is a personal apartheid*" (Arjona & Checa, 2008; p. 202). The same processes are highlighted in studies on suburban (Besharati & Foster, 2013) and urban public places (Spitz, 2015) and classrooms (Henze, 2001). The argument common to all studies regards the way in which racist talk leads to a well-defined racial positioning in the spaces of everyday life. This may be highly resistant to change (Durrheim, 2005) enacting "*hidden and hostile racism*" (Besharati & Foster, 2013; p. 49) and naturalising asymmetries and exclusions (Arjona & Checa, 2008), where, for instance, blacks are stereotyped by whites as 'aggressive' and whites stereotyped by blacks as 'racists' (Durrheim, 2005).

Another prominent body of work in Northern Ireland suggests that religious segregation between Protestants and Catholics emerges in part as a consequence of negative attitudes towards the religious outgroup (McKeown et al., 2012). Moreover, Abdelmonem and McWhinney (2015) suggest that such prejudice in turn stems from individuals' fear of losing their identity as Protestants or Catholics, a fear that manifests particularly



when ‘control over space’ is at stake. Spatial practices of segregation are not merely related to ‘who uses the space’ for both Protestants and Catholics (Abdelmonem & McWhinney, 2015). Instead they are also associated with a desire to maintain territorial control, which may lead to the recreation of informal boundaries within spaces expected to be integrative of different groups (Abdelmonem & McWhinney, 2015).

Regarding micro-ecological segregation by gender, Messner and Bozada-Deas (2009) suggest women and men’s segregationist positioning and interaction in places, namely in youth sports events, result from their own beliefs of women’s role as “team moms” and men’s role as coaches. The “*gendered language and meanings*” (Messner & Bozada-Deas, 2009; p. 68) people use when talking about women and men reinforces conventional gendered divisions as the natural order of things, a stereotyping process translated into segregationist behaviours in places. The authors suggest that this gender-segregated context can be perpetuated in society as children are initiated into it at a very early stage (Messner & Bozada-Deas, 2009).

**Ingroup identification and threat** — A related process involved in micro segregation concerns the strength of individuals’ bonds with their ingroup, i.e., their ingroup identification (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Defensive responses to perceived ingroup threat are related to intergroup dynamics (Tajfel & Turner, 1986) and to associated processes of ingroup identification and intergroup differentiation (e.g., Tajfel & Turner, 1986). Various studies in our review rely on this social identity framework to explain why the desire to interact with others increases when they are perceived as fellow members of social categories, including the categories of ethnicity (de Haan & Leander, 2011; Keizan & Duncan, 2010; Schrieffer et al., 2010; Van Praag et al., 2015), religion (Orr et al., 2012), or from a combined category based on gender and religion (McKeown et al., 2016). According to this perspective, positioning in space is often a situated expression of social identity (de Haan & Leander, 2011) with ingroup identity threat helping to shape micro-ecological behaviours under particular conditions. For example, the local over-representation of a group usually underrepresented in general society – e.g., when high school students with an immigrant background outnumber students of national origin (Van Praag et al., 2015) – may invoke identity threats (e.g., fears about losing cultural dominance). As a result, majority group members can become more prone to join and interact with members of their ingroup and more likely to segregate themselves from members of the outgroup (see also de Haan & Leander, 2011; Keizan & Duncan, 2010). A clear example of how such identity threat may lead to micro-ecological segregation comes from an interview with a Turkish-descendent high school student talking about her relationship with other female classmates of Belgian descent:

*“In this [current] class group, you are part of the group, but there [referring to class group of Mathematics-Sciences], I have never felt more ignored in my life. There was this group of girls in my class group that always made fun of others. They*

*were called ‘airwijken’ [pretentious girls]. For example, they all had handbags from one specific brand. Like, for me, it’s not that important. I actually do not care” (Van Praag et al., 2015; p. 171, our emphasis).*

The study of de Haan and Leander (2011) illustrates how students recruit spaces to construct and preserve ethnic identities. This may, in turn, both justify the existence of such ‘ethnic spaces’ and legitimatise the choice to not mix with other groups. Students’ school identity practices are linked to explicit and implicit representations of the other ethnically different, in which power relations between ethnic groups are implied. As one student of a USA high school claims, regular use of the term ‘nigger’ in the school hallway by ‘black people’ made him acknowledge the ‘authority’ of black students over that space, which he primarily assumed was shared (de Haan & Leander, 2011).

In Salari et al.’s (2006) study on micro segregation among native and immigrant attendants of senior centres, a higher identification of the majority group members with their ingroup was associated with a stronger tendency to protect their group interests and status position (Verkuyten & Brug, 2004). The authors found that natives tended to represent immigrants as being of lower social status and, by implication, to create segregated seating patterns. In a context where decision-making power was generally limited, choosing where to sit in the dining hall – a shared space – offered one of the few opportunities native attendants had to establish group boundaries and position themselves as belonging to a higher status social category.

McKeown et al.’s study (2016) is a particularly interesting example regarding processes of ingroup identification, as it demonstrates how both gender and religious identification may shape segregation. In this study, even though students often chose to sit in the classroom next to a peer of the same religious background – Protestant or Catholic – sitting next to a student of the same gender was statistically more prevalent (see Figure 3). That is, in making their seating choices, students’ gender identification prevailed over religious identification (McKeown et al., 2016). Students sat beside other students with whom they identified, despite the opportunity for intergroup contact (McKeown et al., 2016). Choosing to sit next to someone with whom people identify the most also relates to feelings of positivity and comfort (McKeown et al., 2016), which can be associated with deep-seated feelings of anxiety, fear and insecurity in mixed environments (Stillerman & Salcedo, 2012).

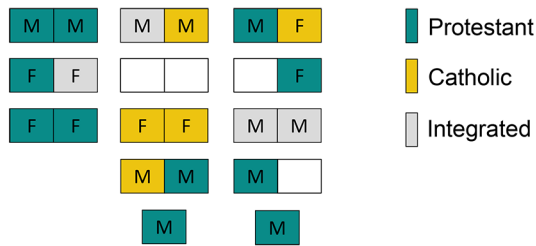


Figure 3. Map of the distribution of students in a school classroom according to students' seating choice in terms of religious background and gender (see McKeown et al., 2016).

This review has enabled another mechanism to be identified. Employing an innovative approach, Lewis (2012) argued that the preference to interact with the ingroup is related not only to negative ethnic attitudes and stereotypes, but also and more significantly to the lower energy group members expend when getting to know other people who are similar rather than different to them, with whom they identify. The choice to self-segregate, he argues, may reflect a drive for energy conservation at a social and psychological level (Lewis, 2012). As a black female university student interviewed in his research pointed out:

*"If you're a minority person, generally coming in [to Southtown] you have to pick which side of the racial fence you're going to be on (...) It's kind of hard to straddle the fence. It takes a lot of work (...)"* (Lewis, 2012; p. 281, our emphasis).

**Feelings of anxiety, fear and insecurity** — People tend to avoid contact with others if such contact creates feelings of discomfort or nervousness (Stillerman & Salcedo, 2012). As Integrated Threat Theory (Stephan & Stephan, 2000) suggests, these feelings of threat may lead ingroup members to dislike outgroup members, leading to stronger feelings of intergroup anxiety, fear and insecurity, and fewer intrinsic intergroup interactions. Avoiding others may also express a sense of territoriality and the feelings of safety it brings (Kesten et al., 2011). Others are avoided due to the fear of feeling potentially out of place, having awkward exchanges or even being humiliated by others with a higher socio-economic status (Garrido, 2013; Stillerman & Salcedo, 2012). In contexts undergoing major transformations, such as shopping malls (Stillerman & Salcedo, 2012), people tend to feel anxious about the higher probability of encountering new and different groups that those transformations entail, which may be accompanied by a fear of feeling out of place (Stillerman & Salcedo, 2012). As a result, they may behave in ways that minimise the opportunity of experiencing contact across group lines in everyday activity spaces. For instance, explaining why he felt uncomfortable at a shopping mall's association with a poorer area of the city of Santiago, Chile, a wealthy resident referred to shoppers as "fauna": *"I don't like this mall very much because the parking lot is dangerous. The fauna are*

*more diverse, and it's not really a good place for an outing. I feel insecure here"* (Stillerman & Salcedo, 2012; p. 320).

The research reviewed also suggests that in contexts supportive of interethnic interactions – such as school and university classrooms – the possibility of interacting with the other ethnic groups creates anxiety where white students are the majority (Alexander & Tredoux, 2010; Keizan & Duncan, 2010; Schrieff et al., 2010). Even if the discourse of the majority often seems to reflect a desire for ethnic and social integration, anxiety may limit the degree of intergroup contact (Keizan & Duncan, 2010), resulting in ethnically homogeneous areas in the same place without social mixing. In their South African research, Alexander and Tredoux (2010) found such ethnically homogeneous areas were created by different ethnic groups of students in mixed shared spaces of a multi-ethnic university campus. These areas offered a sense of belonging, security, comfort and acceptance and the chance to express oneself without fearing any judgment (Alexander & Tredoux, 2010).

Simultaneously, however, these areas also served to exclude racial others, regardless of whether exclusion was intended or not. Indeed, in their study, Alexander and Tredoux (2010) found that students sometimes described the decision-making process regarding the spaces they occupy as expressing “*unspoken rules of space*” (p. 380). As one of their ‘coloured’ student participants explained

*“It’s like that kind of people that you are like sit there. (...) That’s why you go there, and you can be loud and you can laugh. If you like loud and out of place on the [Jammie] stairs then everybody looks at you, you have to know your place. It’s not like that there [at the billiard tables]”* (p. 379).

This tension between perceived exclusion and belonging is also evident in a study about religious segregation between Catholics and Protestants in public places of Belfast’s downtown, where some integrated parks have ironically expanded spaces of division (Abdelmonem & McWhinney, 2015). On one hand, majority group members make every use of larger areas of the parks. On the other hand, and in response, minority group members have isolated themselves from the majority group in ever smaller public territories.

The study of Rodriguez-Navarro et al. (2014) conducted in a Spanish school provides a final powerful example of how feelings of anxiety and insecurity may lead to micro segregationist patterns by ethnicity and sometimes gender. The authors argue that due to insecurities of not being accepted and being mocked by their peers outside the classroom, new male immigrant students may follow the recess norms dictated by the most powerful groups of boys (Rodriguez-Navarro et al., 2014). An ethnographic field note regarding a new immigrant student exemplifies how this situation may perpetuate gender segregation during recess:

*“When the time for recess came, before leaving the class the teacher asked the children ‘who is going to play with Willy?’ Many girls were willing to play with him but, in the end, a couple of boys grabbed Willy (...). When the children went out to play, the boys walked to a concrete patch in which they improvised a soccer field. (...) Some girls approached the boys. From time to time, they waved to Willy, asking him to join them. Finally, some of the boys started yelling and acting out to ‘scare’ the girls away [...]” (Rodríguez-Navarro et al., 2014; p. 354).*

## Discussion and Future Directions

This paper has systematically reviewed the empirical work on micro-ecological processes of inter-group segregation from 2001 to 2017. Research has revealed how such segregation marks social relations across a wide range of contexts, often occurring in civic, public and educational settings that are ostensibly integrated. The reviewed research has revealed educational settings as the main context of study of micro-ecological processes, followed by leisure and recreational places, public urban places and public transport. The predominance of educational settings may also be due to the traditional convenience of using students as participants in psychology research. Even though there is a body of work on religious, socioeconomic and gender patterns of segregation, ethnic segregation remains by far the type of micro segregation most often studied. The research was conducted predominantly in English language countries where inter-ethnic or religious conflicts are prominent. We also found that, over the years, there has been a growing interest among authors in adopting a mixed method approach in order to understand the social psychological processes that may underlie observed behavioural patterns of segregation.

Following [Allport's contact hypothesis \(1954\)](#), researchers have long argued that the isolation of groups maintains negative attitudes and stereotypes, while increased contact reduces intergroup prejudice ([Pettigrew & Tropp, 2006](#)). This systematic review has shown that the mere co-presence of two groups in the same place may be insufficient to produce intergroup contact and, by implication, to reduce intergroup prejudice, which is also in line with [Allport's studies \(1954\)](#). However, the novelty of micro-ecological research lies in its focus on studying individuals and groups' experience in everyday life, rather than focusing on structured contact and explicit processes, through traditional methodological tools, such as laboratory experiments and questionnaire surveys, which do not fully capture the nature and meaning of contact in real life settings. The overall message of the review is that intergroup interactions must be analysed in the concrete realities of everyday settings in order to unlock their complexities and the complexity of the psychosocial processes underlying them. This requires forms of research that are still relatively rare and underdeveloped in the field of contact research, such as those based on direct and naturalistic observation.

What this review has also shown, however, is the recent emergence of a body of work that has attempted to fill this gap, revealing how segregation often arises through embodied practices within the intimate arenas of everyday life spaces. It has shown, too, that such practices can express a range of underlying and interrelated psychosocial processes, including negative attitudes and stereotypes (e.g., Durrheim & Dixon, 2005), in-group identification and perceived threat (e.g., Van Praag et al., 2015), feelings of anxiety, fear and insecurity (e.g., Keizan & Duncan, 2010).

This paper has also attempted to highlight the importance of studying the micro-ecology of intergroup segregation for social psychology and the emerging problems that segregation may cause. Studying the micro-ecology of segregation, we would add, is not only a matter of knowing how people locate themselves publicly in places and/or understanding how this limits intergroup contact. It is also a matter of understanding if and when members of different social categories are able to freely access, share and interact within different places as citizens. In this sense, it is also a way of understanding how citizenship itself is experienced and challenged on a daily basis in the concrete places of everyday life (Di Masso, 2015). As we have seen, for example, micro-ecological processes may demarcate who belongs where with whom in everyday settings, establishing territorial claims within ostensibly 'public' places, fostering complex patterns of perceived exclusion, or even challenging the basic rights of certain categories of person to occupy or use supposed shared places such as beaches (e.g., Durrheim & Dixon, 2005) or parks (Abdelmonem & McWhinney, 2015). Understanding how and why such processes unfold, how they are experienced, and perhaps most important, how they might be transformed, is an important topic for future research.

To conclude our review, we wish to identify three further areas of potential future research, thereby setting an agenda for work in the field.

## Embracing Methodological Innovation

As our review illustrates, most social psychological work on the micro-ecological expression of segregation has consisted of relatively small scale, cross-sectional studies that entail observing socio-spatial practices in a single context (e.g., seating patterns in school cafeterias or public transport). This work has been valuable in establishing the nature and extent of segregation on an intimate scale of analysis; however, it has arguably neglected how segregation is reproduced over time across the full range of social contexts that individuals inhabit in their everyday lives. In this sense, we would argue that social psychologists might benefit from exploring methodological developments in companion disciplines. Such work includes innovations in the use of Participatory GIS methods for understanding how community members themselves perceive intergroup boundaries located across varying socio-spatial scales and across different social contexts (e.g., Huck et al., 2019), methods for estimating the global nature and extent of segregation of everyday

activity spaces (e.g., [Li & Wang, 2016](#)), and methods for tracking and analysing individuals' everyday movements in cities (e.g., [Greenberg Raanan & Shoval, 2014](#)).

With regards to the latter, some researchers have recently argued for the need to develop a richer picture of the 'time geography' of segregation as expressed via individuals' use of everyday activity spaces such as parks and shopping centres and via their routine patterns of movement along public pathways such as footpaths and streets (e.g., [Kwan, 2013](#); [Wang, Li, & Chai, 2012](#)). Difficulties in acquiring relevant data probably explain why so little research has investigated how, in this broader sense, micro-ecological patterns of segregation (and contact) may become part of the 'choreography of everyday life' ([Pred, 1977](#)). However, recent advances in the tracking of everyday mobility practices using GPS technology, allied to the emergence of sophisticated GIS analytics for capturing, coding and visualising such practices, is opening up exciting new avenues of research ([Palmer et al., 2013](#)), on which some psychologists are beginning to draw (see [Figure 4](#) below).

As an example, consider Dixon and colleagues' work on Catholics' and Protestants' use of public environments in north Belfast, Northern Ireland's capital city ([Dixon et al., in press](#); [Hocking et al., 2018](#)). Using a combination of GPS tracking and questionnaire survey methods, these researchers analysed over 1000 hours of movement data, based on the collection of over 20 million GPS data point. They found that north Belfast is characterised by high levels of sectarian segregation, expressed via residents' limited use of public facilities and pathways located in outgroup areas. They also found, however, that the use of shared destinations was fairly common, particularly in the period between 12 and 6pm, and mainly based in relatively neutral spaces of consumption such as shopping centres and retail outlets. Analysis of associated questionnaire data suggested that Catholic and Protestant residents' self-reported willingness to use activity spaces beyond their own communities was shaped by factors such as realistic threat, symbolic threat and past experiences of positive and negative contact with members of the 'other' community. Moreover, both intergroup threat and contact were associated with the amount of time residents actually spent in spaces beyond their own communities.

In our view, this integrative combination of subjective psychological data with data on concrete mobility practices over time offers rich possibilities for future research on activity space segregation. Such a combination, of course, also highlights the importance of developing interdisciplinary research frameworks, capitalising on emerging technologies for investigating human mobility, and drawing new techniques for mapping the divided city (see also [Huck et al., 2019](#)).



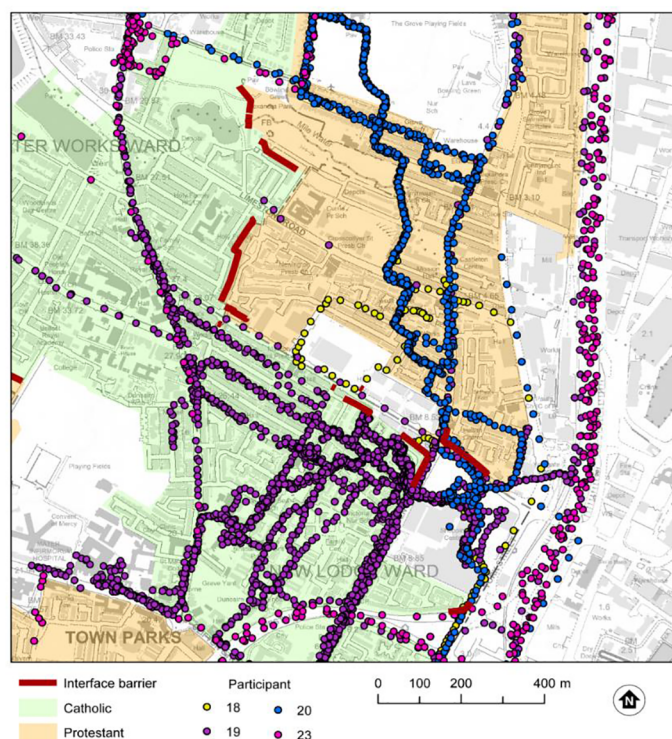


Figure 4. Capturing residents' movements through everyday spaces in Belfast using GPS tracking and GIS data capture and representation (see [Hocking et al., 2018](#)).

## Exploring the Intersection of Category Memberships in Everyday Practices of Segregation

As noted already, research on the micro-ecological dimension of segregation has recently started to move beyond a narrow focus on ethnic and racial categories to include work, for example, on gendered and sectarian relations (e.g., [McKeown et al., 2016](#)). The next step will be to systematically explore how, when and why the intersectionality of social categories and identities shape micro-ecological practices of contact and separation in everyday activity spaces.

As an example of the potential significance of such work, consider the recent debate around gender and seating arrangements on Haredi bus routes in Israel. Between 1997 and 2011, 'Mehadrin' bus lines running to and from ultra-orthodox Haredi Jewish communities in cities such as Jerusalem, practised gender segregation. Women were expected to dress 'modestly', to enter buses via a back entrance, and to sit in the back regions of buses. This practice reflected a particular intersection of religious and gendered identities. Outlawed by the Israeli High court of Justice in 2011, instances where both secular



women and Haredi women were threatened by Haredi men because they chose to sit in the front of a 'Mehadrin bus', have continued to attract high profile media coverage and lawsuits, as well as academic debate (see [Harel, 2004](#); [Greenfield, 2007](#); [Triger, 2013](#); [Warburg, 2011](#)). The academic debate has revolved, among other things, around the question of whether the front versus back nature of gendered seating patterns on Haredi bus routes represents a form of gender discrimination, the unwarranted obtrusion of religious conceptions of gender relations into the public sphere, or the legitimate and voluntary expression of religious identity by Haredi women.

Our point here is not to intervene in this debate. Rather, we use this example to highlight how the complex intersection of social categories can reveal the political complexities of micro-ecological patterns of division, taking the field beyond the rather narrow, often binary, categories of race and ethnicity on which most previous work has focused. Such complexities, in our view, represent a potentially important focus of future research - not least because they bear upon the problem of social change.

## Promoting Micro-Ecological Change

If micro-ecological patterns of segregation are, at least in some circumstances, viewed as an obstacle to achieving social integration and reducing intergroup prejudice, then two related questions follow. First, why are the boundaries created by practices apparently so recalcitrant, emerging even in contexts where integration is being actively promoted? Second, how might we devise interventions to reduce the segregation in everyday life spaces and encourage new forms of contact across ethnic, racial, gendered and cultural barriers? In short, the theme of social change is critical to future work in the field.

The recalcitrance of micro-ecological boundaries is easy to understand in societies that practice *de jure* segregation. Under 'Jim Crow' race laws in the US, for example, racial divisions were legally enforced for such mundane activities as eating in restaurants or using a drinking fountain. You could be put in prison for flouting them. Similar rules were applied by the strictures of 'petty apartheid' in South Africa, which in its most extreme moments regulated such banal activities as queuing in post-offices and swimming in public baths. However, the corollary assumption that removing these legal foundations would dismantle the segregation of everyday places has not proven correct in either society ([Dixon et al., 2008](#)). Even in the absence of legal foundations, as our review has starkly revealed, the segregation of everyday life places is persistent and widespread.

The present review has also shed some light on why these forms of segregation are difficult to change. On the one hand, as the previously discussed work of [Swyngedouw \(2013\)](#) illustrates, divisions on a micro-ecological scale may reflect divisions at a broader level: the patterns of racial segregation on public transport that she identified reflect not only Chicago commuters' seating choices, but also the wider residential polarisation of the city. As commuters travel the Red Line from South Side (comprising mainly African American neighbourhoods) to the North Side (comprising mainly white neighbour-

hoods), the racial demography of carriages shifts accordingly. Future research might further address this kind of relationship between micro and macro level processes of segregation in an attempt to develop strategies to promote socio-spatial change. On the other hand, our review has also emphasised the potential role of psychological processes such as negative attitudes and stereotypes, prejudice, social identification, threat, and sense of place in shaping individuals' preferences to maintain interactional distances and boundaries in everyday life spaces. Again, we would emphasise that work that links the psychological mechanisms directly to actual micro-ecological behaviours in everyday settings remains relatively sparse and is again a topic ripe for further research and, not least, theorisation.

In addition, we need to know more about how micro-ecological practices, and the social psychological mechanisms that underpin them, might be altered and what kinds of interventions might encourage greater intergroup contact. As an instructive closing example, consider McKeown, Williams, and Pauker's (2017) research in a primary school in the UK, which explored the consequences of a 'value in diversity' storybook intervention on seating patterns amongst 4 to 6 year-old children in a lunchroom setting. Prior to this intervention, such seating patterns displayed clear patterns of segregation along racial lines. However, immediately after listening to a story that emphasised the importance of valuing racial diversity, inclusion and contact, children's lunchtime seating arrangements displayed reduced levels of segregation. Qualifying this optimistic finding, McKeown et al. (2017) found this change to be short lived – 48 hours later, lunchtime self-segregation by race had re-emerged amongst children in their study. Even so, this work shows how teacher-led interventions may have the potential to promote intergroup contact. More broadly, it highlights the importance of exploring both why micro-ecological patterns of segregation are so persistent and how they might be reduced as an imperative for future work.

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Appendix

Table A.1

Summary of Studies From 2009 to 2017 Relative to Studies’ Aims and Findings by Type of Segregation

Authors	Type of segregation	Aim of the study	Findings
Schrieff et al. (2005)	Ethnic	To study the seating patterns of black and white students in university dining-halls.	Intragroup seating patterns of both groups.
Alexander (2007)	Ethnic	To study the seating patterns of black and white students in university dining-halls.	Intragroup seating patterns of both groups. “White” tables are strongly resistant to ‘intrusion’.
Tredoux et al. (2005)	Ethnic	To study the seating patterns of students from different ethnic groups on university public steps.	Spatial positioning at intragroup level. When the space fills up, and there is less choice for seats, the seating pattern becomes less segregated.
Cowan (2005)	Ethnic	To study students’ inter-ethnic interactions in university classrooms and informal settings on campus.	Same percentage of inter-ethnic and intra-ethnic groups. Inter-ethnic contact is higher in multi-ethnic environments with higher levels of minority groups’ members than majority groups’ members (white).
Clack et al. (2005)	Ethnic	To study the seating patterns of students from different ethnic groups in a university cafeteria.	Multiple forms of segregation in the cafeteria. Crowding creates a social context in which individuals’ willingness to associate with members of other ethnic groups declines.
Tredoux and Dixon (2009)	Ethnic	To study the patterns of contact and isolation of different ethnic groups in night clubs.	Unequal distribution of ethnic groups in night clubs. Predominant ethnically exclusive seating arrangements and intra-ethnic interactions in each club.
Koen and Durrheim (2010)	Ethnic	To study the seating patterns of students from different ethnic groups in university lecture theatres.	Segregation increases over the course of a semester, with no significant differences in levels of segregation between black, white, and Indian groups. A lower number of students is associated with higher levels of segregation.
Swyngedouw (2013)	Ethnic	To study interactions and seating arrangements among different ethnic groups on a train line.	Interaction occurs mainly with people who look similar and appear to be living in the same city’s area, expressing the geographical and social exclusion in the city.
Priest et al. (2014)	Ethnic	To study intergroup contact between minority and majority ethnic groups within urban public spaces.	Minority groups tend to have no contact with others or to interact with people from their own or other visible minority ethnic groups. Majority groups (Anglo/White Australians) tend to interact predominately at intragroup level, and are more likely to self-segregate.
Dixon and Durrheim (2003)	Ethnic	To study micro ethnic distribution and varieties of informal segregation in a public beach.	Production of ‘umbrella spaces’ – ethnically homogeneous spaces – giving rise to patterns of ingroup contact. Segregation is seen as part of the natural order of things, and reflects and actively sustains racial stereotyping.
Durrheim and Dixon (2005)	Ethnic	To study micro ethnic distribution and varieties of informal segregation in a public beach.	Patterns of informal segregation between blacks and whites. Whites ‘run away’ from blacks, to carve out new spaces of privilege and exclusion elsewhere. The relationship between racist talk and the reality of the world is constituted by embodied practices.
Durrheim (2005)	Ethnic	To study micro ethnic distribution and varieties of	Whites ‘run away’ from blacks, occupying the beach early, clustering together. Micro-ecology of racial interaction gives rise to representations of racial



Authors	Type of segregation	Aim of the study	Findings
		informal segregation in a public beach.	differences and hierarchy. White interviewees stereotype blacks as aggressive and black interviewees stereotype whites as racists.
Salari et al. (2006)	Ethnic	To analyse inclusionary and exclusionary behaviours between natives and immigrants, in senior center spaces.	There is a territorial behaviour. Defending a dining seat often prevented the defender from leaving the seat and taking advantage of other activities at the centre. Lack of representation and decision making power among participants may have enforced a sense of lower social status.
Arjona and Checa (2008)	Ethnic	To understand the micro-ecological segregation among different ethnic groups on a bus.	High levels of segregation both in location (dissimilarity) and interaction. Immigrants sit at the back, and natives sit at the front. Boundaries are maintained in all inter-ethnic interaction processes, based on prejudices and stereotypes.
Hunter (2010)	Ethnic	To study social interactions in a predominantly black night club.	The club is seen as a unique opportunity to use space to interact across social class and neighbourhood lines. The club's within-ethnicity heterogeneity is seen as a unique opportunity to gather connections to enhance individuals' own social capital.
Echols et al. (2014)	Ethnic	To study the seating patterns of middle school students from different ethnic groups in the school's cafeteria.	Certain areas of the cafeteria are more likely to be occupied by specific ethnic groups. As lower status ethnic minority groups, African American and Latino students cross ethnic boundaries to sit together as a result of the perceived shared plight of marginalized groups. At the beginning of middle school, being a white person is a greater determining factor of segregation than the presence of a high number of whites.
Spitz (2015)	Ethnic	To study social interactions across different ethnic groups in urban public places.	Publicly cross-ethnic contact is shallow and often reify ethnic and spatial boundaries in the neighbourhood. Neighbourhood ethnic diversity, even in micro-spaces where exposure is guaranteed, is insufficient for fostering cross-ethnic social interaction.
Besharati and Foster (2013)	Ethnic	To study how everyday interactions maintain and regulate new ethnically boundaries in public suburban places.	There is a pattern of informal segregation among the Indian minority community, and a new pattern of internal segregation between the 'South African Indians' and 'immigrant Indians'. Informal segregation acts as a regulator of hidden and hostile racism. The 'South African Indian' group does not identify with the 'immigrant Indians'.
Van Praag et al. (2015)	Ethnic	To study patterns of interethnic relations between students in classrooms of multiethnic secondary schools.	There are ingroup preferences regarding gender and ethnicity. Patterns of interethnic relations vary across tracks, ranging from separation of ethnic groups, positive encounters with students of another ethnic descent, to the development of ethnic tensions and hostile attitudes, stemming from the awareness of ethnic identities.
Kesten et al. (2011)	Ethnic	To study patterns of ethnic segregation in urban public places.	There is a practical conviviality, alongside limitations, difficulties and tensions between different groups. The sense of territoriality among young people is translated into feelings of safety within that square, but a degree of danger outside it.
de Haan and Leander (2011)	Ethnic	To study patterns of ethnic segregation between high schools' students from different ethnic groups.	School spaces become "loaded" or marked by ethnic confrontations. Resources for "othering" become compressed within school spaces. These spaces may be informing certain identity positions, and serve to

Authors	Type of segregation	Aim of the study	Findings
Alexander and Tredoux, (2010)	Ethnic	To analyse students' seating patterns in university tutorial classrooms.	characterise inter-ethnic relationships in terms of particular ethno-spatial patterns. Seating patterns are significantly segregated on both spatial dimensions of evenness and exposure. Segregation remains significant over time. Ethnically homogeneous spaces are a product of processes of inclusion and exclusion. The classroom provides a supportive framework for black students' inter-ethnic interactions, and creates anxiety for white students.
Keizan and Duncan (2010)	Ethnic	To study patterns of ethnic segregation amongst high school students in an ethnically desegregated school setting.	Patterns of both ethnic integration and segregation. Social segregation on the basis of ethnicity is relatively fixed and chosen. Black, Indian and coloured learners integrate more frequently with each other than do white learners with any other ethnic group. Despite ethnic integration not physically occurring, it seems that there is a desire for ethnic integration, or at least it seems an aspiration.
Henze (2001)	Ethnic	To study interethnic relations between students from different ethnic groups in multiethnic schools.	Segregation patterns among students from different ethnic groups in classrooms. There is a tendency to stereotype other ethnic groups.
Lewis (2012)	Ethnic	To study the seating patterns amongst college students from different ethnic groups.	Ethnic groups showed differing levels of segregation: Asians - lowest score; whites - next lowest score; Hispanics - next lowest score; blacks - highest score, thus they are the most segregated. These differences can be attributed to discrimination faced by black students, requiring much social energy for everyday social interaction. All nonwhite students have strong ingroup preferences, because of the low social energy needed for these friendships.
Schrieff et al. (2010)	Ethnic	To study the temporal stability of segregated seating arrangements of students in university residences.	There is a marked segregation in seating patterns and consistent over time. For 59.57% of students, most of the peers they sit with are of the same ethnicity. For 13.83%, all of the peers they sit with are same-ethnicity peers, due to perceived similarity and understanding across interests, customs, culture, or background. Students also revealed intergroup anxiety.
Ramiah et al. (2015)	Ethnic	To study ethnic (re)segregation in a mixed high school cafeteria with high proportions of outgroup members.	Multiple patterns of (re)segregation. Both whites and Asians attributed their own and outgroup's failure to interact to lack of interest.
Nagle (2009)	Religious	To study patterns of segregation between Protestants and Catholics in public places and public events in city center.	Local segregation patterns in shared public places and public events in city centre between both groups.
Abdelmonem and McWhinney (2015)	Religious	To study patterns of segregation between Protestants and Catholics in public urban parks.	Each community tends to extend their privileged spatial practices into the park space. The demand over territory is driven by a sense of insecurity on the minority group's side.
McKeown et al. (2012)	Religious	To study the seating patterns of Protestants and Catholics students in a meeting room, meeting hall and a school bus.	There is a persistent segregation from meeting hall to bus. Students revert to ingroup acquaintances when out of the contact situation. Ingroup identification maintains ingroup interaction patterns.

Authors	Type of segregation	Aim of the study	Findings
Orr et al. (2012)	Religious	To study seating patterns of Protestants and Catholics students in university lecture theatres.	Participants make self-segregating decisions even without the presence of visual cues.
McKeown et al. (2016)	Religious	To study seating patterns of Protestants and Catholics students in school's classrooms.	There are patterns of religious and gender segregation in the majority of classrooms. Segregated seating choice persists over time. Students sit beside those with whom they identify most strongly with.
Pérez-Tejera (2012)	Socioeconomic	To study patterns of segregation in urban public squares amongst different socioeconomic groups.	Patterns of segregation according to visible signs of poverty people exhibit. People use mechanisms of social exclusion in places perceived as more safe.
Stillerman and Salcedo (2012)	Socioeconomic	To study patterns of segregation amongst groups of different socioeconomic backgrounds in shopping malls.	Poor residents avoid these malls, fearing they would feel out of place there, or that wealthier customers might humiliate them.
Krellenberg et al. (2014)	Socioeconomic	To study patterns of segregation amongst groups of different socioeconomic backgrounds in urban green areas.	Majority of households visit parks in their vicinity. These two parks are mostly situated in neighbourhoods with the same socioeconomic status as the park visitors.
Garrido (2013)	Socioeconomic	To study the segregating practices of squatters and villagers in both typical and atypical situations of class interaction.	Villagers engage in three main types of segregating practices: 1) exclusion; 2) circumscription; and 3) avoidance. Squatters mainly engage in avoidance. Villagers initiate segregating practices, while squatters mainly conform to them.
Messner and Bozada-Deas (2009)	Gender	To study the social construction of adult gender segregation in youth sports.	The majority of women volunteers are channeled into a team parent position, and the majority of men volunteers become coaches. Men coaches and "team moms" symbolise and exemplify tensions.
Rodriguez-Navarro et al. (2014)	Gender and Ethnic	To understand the process through which immigrant newcomers integrate in their new school setting.	Boys predominantly tend to self-segregate. Girls tend to welcome all students. Immigrant newcomers fear being mocked and rejected by male groups.



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